

# PATENT ABSTRACTS OF JAPAN

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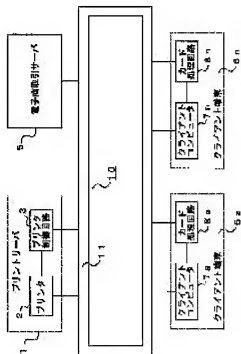
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## (54) PRINTING SYSTEM

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a printing system to surely/efficiently transfer a charge by electronic money and to enable exact control of printing according to the electronic money to be provided by a client.

**SOLUTION:** An electronic commerce server 5 fetches electronic money information of a client terminal 6a, a printer control circuit 3 calculates the printable number of sheets by the electronic money, when the number of printed sheets is judged to exceed the printable number of sheets in a printing process of print data from the client terminal 6a, addition of the electronic money is requested from a print server 1 to the client terminal 6a, the printer control circuit 3 performs printing control corresponding to the provided electronic money, the electronic commerce server 5 performs sure/efficient electronic commerce between the client terminal 6a and the print server 1 via a network, the printing is exactly and continuously controlled according to the electronic money to be supplied from the client terminal 6a and sure/efficient execution of the printing corresponding to the electronic money to be supplied from the client terminal 6a is enabled.



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## EFFECT OF THE INVENTION

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[Effect of the Invention]In the invention concerning the printing system according to claim 1. The print server which performs printing based on the printing demand from a client terminal and a client terminal, And it is mutually connected via the network by the electronic money processing server which carries out agency control, and the electronic commerce technology between a client terminal and a print server by an electronic money possession information presenting means. Via an electronic money processing server, a print server is shown it by the electronic money possession information on the client terminal which emits a printing demand, and in a print server. The number of sheets which can be printed is computed by the printing number-of-sheets calculating means for the electronic money possession information shown by the electronic money possession information presenting means. And the printing demand exceeding the number of sheets which was computed by the printing number-of-sheets calculating means and which can be printed is received, As opposed to the printing demand which an alarm is outputted to a client terminal by the alarm outputting means, and is the target of an alarm by it, Since correspondence control of the printing is accurately carried out by the correspondence control means according to the electronic possession information shown with a client terminal, Collection of printing fee gold by a print server and payment of printing fee gold by a client terminal are made certainly and efficiently via a network, and it becomes possible to control execution of printing accurately corresponding to the electronic money possession information on a client terminal.

[0038]According to the invention according to claim 2, a correspondence control means becomes realizable [ the effect in the invention according to claim 1 ] by controlling printing to the printing demand which is the target of an alarm to perform printing to the number of sheets which can be printed.

[0039]According to the invention according to claim 3, realization of the effect in the invention according to claim 1 is attained by controlling printing so that a correspondence control means

may continue printing on condition of addition of electronic money to the printing demand which is the target of an alarm.

[0040]According to the invention according to claim 4, when a correspondence control means carries out the reduced print at least of the part to the printing demand which is the target of an alarm, realization of the effect in the invention according to claim 1 is attained by controlling printing to print by the number of sheets which can be printed.

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**TECHNICAL FIELD**

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[Field of the Invention]In this invention, print data are transmitted to a print server via a network from a client terminal.

Therefore, it is related with the printing system with which printing of these print data is performed in a print server.

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## MEANS

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[Means for Solving the Problem]In order to attain said purpose, the invention according to claim 1, A print server which performs printing based on a printing demand from a client terminal and a client terminal, And an electronic-commerce-technology server which carries out agency control of the electronic commerce technology between said client terminal and said print server, Are the printing system mutually connected via a network, and electronic money possession information on a client terminal which emits said printing demand via said commercial transaction server, For electronic money possession information which an electronic money possession information presenting means shown to said print server was provided in said client terminal, and was shown by said electronic money possession information presenting means. As opposed to a printing demand exceeding number of sheets which was computed by printing number-of-sheets calculating means which computes number of sheets which can be printed, and said printing number-of-sheets calculating means and which can be printed, An alarm outputting means which emits an alarm to said client terminal, and a correspondence control means which carries out correspondence control of the printing accurately to a printing demand which is the target of said alarm are provided in said print server.

[0005]A print server which performs printing in such a means based on a printing demand from a client terminal and a client terminal, And it is mutually connected via a network by electronic money processing server which carries out agency control, and electronic commerce technology between a client terminal and a print server by an electronic money possession information presenting means. Via an electronic money processing server, a print server is shown it by electronic money possession information on a client terminal which emits a printing demand, and in a print server. Number of sheets which can be printed is computed by printing number-of-sheets calculating means for electronic money possession information shown by an electronic money possession information presenting means. And a printing demand exceeding

number of sheets which was computed by a printing number-of-sheets calculating means and which can be printed is received, As opposed to a printing demand which an alarm is outputted to a client terminal by alarm outputting means, and is the target of an alarm by it, Collection of printing fee gold according to electronic possession information shown with a client terminal, correspondence control of the printing is accurately carried out by correspondence control means, and according to a print server, Payment of printing fee gold by a client terminal is made certainly and efficiently via a network, and execution of printing is accurately controlled corresponding to electronic money possession information on a client terminal.

[0006]In order to attain said purpose similarly, the invention according to claim 2 controls printing in the invention according to claim 1 so that said correspondence control means performs printing to number of sheets which can be printed to a printing demand which is the target of said alarm.

[0007]According to such a means, when a correspondence control means controls printing to a printing demand which is the target of an alarm to perform printing to number of sheets which can be printed, an operation of the invention according to claim 1 is performed.

[0008]In order to attain said purpose similarly, the invention according to claim 3 controls printing in the invention according to claim 1 so that said correspondence control means continues printing on condition of addition of electronic money to a printing demand which is the target of said alarm.

[0009]According to such a means, an operation of the invention according to claim 1 is performed by controlling printing so that a correspondence control means may continue printing on condition of addition of electronic money to a printing demand which is the target of an alarm.

[0010]In order to attain said purpose similarly, the invention according to claim 4, In the invention according to claim 1, said correspondence control means controls printing by carrying out the reduced print at least of the part to a printing demand which is the target of said alarm to print by number of sheets in which said printing is possible.

[0011]According to such a means, when a correspondence control means carries out the reduced print at least of the part to a printing demand which is the target of an alarm, an operation of the invention according to claim 1 is performed by controlling printing to print by number of sheets which can be printed.

[0012]

[Embodiment of the Invention][A 1st embodiment] A 1st embodiment of this invention is described with reference to drawing 1 thru/or drawing 3. The block diagram in which drawing 1 shows the composition of this embodiment, the flow chart with which drawing 2 shows first half operation of this embodiment, and drawing 3 are flow charts which show second half operation of this embodiment.

[0013] This embodiment is a case where IC cards, such as a prepaid card and a credit card, are used as electronic money, and in this embodiment. Two or more client terminals 6a-6n which give a printing demand to the print server 1 which performs print operation to the looped shape transmission medium 11, and the print server 1 as shown in drawing 1, And the electronic-commerce-technology server 5 which carries out agency control of the electronic commerce technology for the print server 1, and client terminal 6a-6n is connected, and looping LAN(LocalAreaNetwork) 10 is constituted. The printer control circuit 3 which controls the operation of the printer 2 and the printer 2 which prints is established in the print server 1 which constitutes this LAN10, and the client computers 7a-7n and the card processing circuits 8a-8n are established in the client terminals 6a-6n, respectively.

[0014] These client terminals 6a-6n are provided with the electronic money possession information presenting means which shows the print server 1 the electronic money possession information on each IC card via the electronic-commerce-technology server 5 by the client computers 7a-7n and the card processing circuits 8a-8n. The printer control circuit 3 of the print server 1, As opposed to the printing number-of-sheets calculating means which computes the printing number of sheets which can be printed for the electronic money possession information from the client computers 7a-7n, the alarm outputting means which emits an alarm to the printing demand exceeding the number of sheets which can be printed, and the printing demand which is the targets of an alarm, It has the 1st correspondence control means that performs printing to the number of sheets which can be printed.

[0015] Operation of such this embodiment of composition is explained based on the flow chart of drawing 2 and drawing 3. When the case where the print server 1 prints will be here explained with the print request signal emitted from the client terminal 6a, at Step S1 of the flow chart of drawing 2. If the electronic money possession information on the IC card set to the client terminal 6a is read in the card processing circuit 8a, the electronic money possession information that it progresses and corresponds to Step S2 will be transmitted to the printer control circuit 3 of the print server 1 via the transmission medium 11. In this case, at Step S3, if received in the printer control circuit 3 of the print server 1, the electronic money possession information from the client terminal 6a, The number-of-sheets information which was computed by the printing number-of-sheets calculating means of the printer control circuit 3 computing the maximum number of sheets which can be printed, and progressing to Step S5 using the electronic money possession information received and which can be printed is transmitted to the client terminal 6a via the transmission medium 11. And if it progresses to Step S6 and the client computer 7a of the client terminal 6a receives the number-of-sheets information from the print server 1 which can be printed, it will progress to Step S7 and the number-of-sheets information which can be printed will be displayed on the display of the client computer 7a. [0016] Subsequently, progress to Step S8 of the flow chart of drawing 3, and with the client

computer 7a of the client terminal 6a. Based on application software, control of the printing execution to the print server 1 is started, it progresses to step S9, and print data are transmitted to the print server 1 via the transmission medium 11 from the client computer 7a. And if the print server 1 receives print data at Step S10, it will progress to Step S11 and printing of the print data transmitted by control of the printer control circuit 3 from the client terminal 6a with the printer 2 will be performed.

[0017]In this case, in the print server 1, performing print operation of the print data based on the printer 2 at Step S12. The judgment of whether printing by the number of sheets which was computed by step S4 and which can be printed is possible is performed to print data, and printing will be continued by it if judged with printing being possible by the printer control circuit 3. Subsequently, in Step S13, the judgment of whether printing was completed is performed, if judged with printing having been completed, it will progress to Step S14 and the claim electronic money information concerning printing will be transmitted to the electronic-commerce-technology server 5 from the print server 1. And in the electronic-commerce-technology server 5, operation of the electronic commerce technology of dropping [ lengthen ] electronic money and the payment for the print server 1 is performed based on the claim electronic money information concerning printing received from the print server 1, and the IC card information incorporated from the client computer 6a. If judged with printing not being completed at Step S13, it will return to step S9 and, as for the following, the already explained operation will be repeated.

[0018]On the other hand, at Step S12, if judged with printing within [ which can be printed ] number of sheets being impossible, it will progress to Step S15, To the client terminal 6a, from the alarm outputting means of the printer control circuit 3 of the print server 1. In continuation of printing beyond this, an alarm signal that the number of sheets which can be printed exceeds is transmitted, and the message of an alarm signal is displayed on the display of the client computer 7a of the client terminal 6a. And based on this alarm signal, if the number of sheets which can be printed is reached, the client computer 7a will stop and the transmission to the print server 1 of print data will progress to Step S17 with it, Printing of the number of sheets in the print server 1 which can be printed is completed, and it progresses to Step S14, and as already explained, operation of electronic commerce technology is performed.

[0019]Thus, the electronic money possession information on the IC card which was first set to the client terminal 6a according to this embodiment, From the electronic-commerce-technology server 5, it is incorporated by the electronic-commerce-technology server 5, and this electronic money possession information is transmitted to the print server 1, and by the printer control circuit 3 of the print server 1. The maximum number of sheets which can be printed for the electronic money possession information shown from the client terminal 6a is computed, the computed number-of-sheets information which can be printed is transmitted to the client



terminal 6a, and the message of the number of sheets which can be printed is displayed on the display of the client computer 7a.

[0020]Although printing is performed with the printer 2 of the print server 1 in this state based on the print data transmitted from the client terminal 6a, Set like real overshooting of printing, and the judgment of whether printing within [ which can be printed ] number of sheets is possible is performed by the printer control circuit 3, and especially in this embodiment. If judged with printing within printing good number of sheets being impossible, the alarm of an excess of number of sheets for the electronic money possession information on presentation which can be printed will be displayed on the display of the client computer 7a, and after printing of the number of sheets which can be printed is completed, print operation stops. And the claim electronic money information built over printing transmitted from the print server 1 by the electronic-commerce-technology server 5, Based on the IC card information incorporated from the client computer 6a, electronic commerce technology of dropping [ lengthen ] the electronic money from the IC card of the client terminal 6a and the payment for the print server 1 is performed corresponding to the number of sheets which can be printed.

[0021]For this reason, according to this embodiment, according to the electronic money possession information provided with the client terminal 6a, it is accurately controlled by printing to the number of sheets which can be printed, and in the print server 1. Collection of printing fee gold is performed certainly and efficiently via a network, and in the client terminal 6a. It becomes possible to make payment of printing fee gold efficiently by an IC card via a network, and it becomes possible to perform printing corresponding to the electronic manager possession information which the client terminal 6a provides accurately and efficiently.

[0022][A 2nd embodiment] A 2nd embodiment of this invention is described with reference to drawing 4. Drawing 4 is a flow chart which shows second half operation of this embodiment.

[0023]When this embodiment diverts and explains drawing 1, the printer control circuit 3 of the print server 1, Although it has a printing number-of-sheets calculating means which computes the number of sheets which can be printed for the electronic money possession information from the client computers 7a-7n, and an alarm outputting means which emits an alarm to the printing demand exceeding the number of sheets which can be printed like a 1st embodiment, It replaces with the 1st correspondence control means of a 1st embodiment, and has the 2nd correspondence control means that performs printing controlling so that printing may be continued on condition of addition of electronic money to the printing demand which is the target of an alarm. Since the composition of the portion of others of this embodiment is the same as that of a 1st already described embodiment, overlapping explanation is not given.

[0024]Based on the flow chart of drawing 4, drawing 1 is diverted and operation of such a 2nd embodiment of composition is explained. The operation to Step S21 of this embodiment is the same as operation to the 1st Step S1 thru/or Step S14 of an embodiment already explained

with reference to drawing 2 and drawing 3. In this embodiment, at Step S12 of the flow chart of drawing 3, if judged with printing within [ which can be printed ] number of sheets being impossible, it will progress to Step S21 of the flow chart of drawing 4. To the client terminal 6a, from the alarm outputting means of the printer control circuit 3 of the print server 1. An alarm signal that the number of sheets which can be printed exceeds in continuation of printing beyond this is transmitted, and the message of an alarm signal is displayed on the display of the client computer 7a in the client terminal 6a.

[0025]And progress to Step S22 and an electronic money addition request signal is transmitted to the client terminal 6a from the print server 1, Receive this electronic money addition request signal, and if print data are transmitted to the print server 1 in Step S23 from the client terminal 6a which performed electronic money adding processing, it will progress to Step S24, The judgment of whether printing within [ which can be printed ] number of sheets is possible is performed by the printer control circuit 3 of the print server 1. And if judged with printing within [ which can be printed ] number of sheets being possible, printing will be continued, and it progresses to Step S25, and the judgment of whether printing was completed by the printer control circuit 3 is performed. At Step S24, if judged with printing within [ which can be printed ] number of sheets being impossible, it will return to Step S21 and the already explained operation will be repeated.

[0026]And if judged with printing having been completed at Step S25, from the print server 1, the claim electronic money information concerning printing will be transmitted to the electronic-commerce-technology server 5, and it will progress to Step S26, In the electronic-commerce-technology server 5, operation of the electronic commerce technology of dropping [ lengthen ] electronic money and the payment for the print server 1 is performed based on the claim electronic money information received from the print server 1, and the IC card information incorporated from the client computer 6a. If judged with printing not being completed at Step S25, it will return to Step S23 and, as for the following, the same operation as the already explained operation will be repeated.

[0027]Thus, according to this embodiment, like a 1st embodiment, First, the electronic money possession information on the IC card set to the client terminal 6a, It is incorporated by the electronic-commerce-technology server 5, is transmitted to the print server 1 by this electronic money possession information, and by the printing number-of-sheets calculating means of the printer control circuit 3 of the print server 1. The maximum number of sheets which can be printed for the electronic money possession information shown from the client terminal 6a is computed, this number-of-sheets information that can be printed is transmitted to the client terminal 6a, and it is displayed on the display of the client computer 7a.

[0028]In this state, based on the print data transmitted from the client terminal 6a, it is performed by printing with the printer 2 of the print server 1, and by the printer control circuit 3.

Like real overshooting of printing, possibility is judged and printing within [ which can be printed ] number of sheets especially in this embodiment. If judged with printing within printing good number of sheets being impossible, the alarm of an excess of number of sheets for the electronic money possession information on presentation which can be printed will be displayed on the display of the client computer 7a. The addition request of electronic money is performed to the client terminal 6a from the print server 1, and control execution of the printing corresponding to the original electronic money possession information and the electronic money added is carried out by the printer control circuit 3. And the claim electronic money built over printing based on the electronic money possession information and the additional electronic money of the client terminal 6a from the print server 1 by the electronic-commerce-technology server 5 after the end of printing. Based on the IC card information on the client terminal 6a, electronic commerce technology of dropping [ lengthen ] the electronic money from the IC card of the client terminal 6a and the payment for the print server 1 is performed. [0029]For this reason, the electronic money possession information which is provided with the client terminal 6a according to this embodiment, According to the additional money information added in a printing process, accurately, continuous control of the printing is carried out and in the print server 1. Collection of printing fee gold is performed certainly and efficiently via a network, and in the client terminal 6a. It becomes possible to make payment of printing fee gold efficiently by an IC card via a network, and it becomes possible to perform printing corresponding to the additional electronic money of electronic money possession information and after that which the client terminal 6a provides accurately and efficiently.

[0030][A 3rd embodiment] A 3rd embodiment of this invention is described with reference to drawing 5. Drawing 5 is a flow chart which shows the corresponding operation at the time of an excess of number of sheets of this embodiment which can be printed.

[0031]When this embodiment diverts and explains drawing 1, the printer control circuit 3 of the print server 1, Although it has a printing number-of-sheets calculating means which computes the number of sheets which can be printed for the possession information on the electronic money from the client computers 7a-7n, and an alarm outputting means which emits an alarm to the printing demand exceeding the number of sheets which can be printed like a 1st embodiment, It has the 3rd correspondence control means corresponding to electronic money possession information that controls printing to print within [ which can be printed ] number of sheets by replacing with the 1st correspondence control means of a 1st embodiment, and carrying out the reduced print at least of the part to the printing demand which is the target of an alarm. Since the composition of the portion of others of this embodiment is the same as that of a 1st already described embodiment, overlapping explanation is not given.

[0032]Based on the flow chart of drawing 5, drawing 1 is diverted and operation of such a 3rd embodiment of composition is explained. The operation to Step S31 of this embodiment is the

same as operation to the 1st Step S1 thru/or Step S14 of an embodiment already explained with reference to drawing 2 and drawing 3. In this embodiment, at Step S12 of the flow chart of drawing 3, if judged with printing within [ which can be printed ] number of sheets being impossible, it will progress to Step S31 of drawing 5. By the 3rd correspondence control means of the printer control circuit 3, the print data henceforth transmitted from the client terminal 6a so that it may store in the remaining number of sheets of the number of sheets which can be printed, The printing method which reduced print data at least in the part is created, and printing based on this printing method is performed with the printer 2. And printing by the created printing method is continued and it progresses to Step S32, After the output of the print data from the client terminal 6a is completed, All Printing Bureau Labour Union completes, and it progresses to Step S33, In the electronic-commerce-technology server 5, operation of the electronic commerce technology of dropping [ lengthen ] electronic money and the payment for the print server 1 is performed based on the claim electronic money information received from the print server 1, and the IC card information incorporated from the client computer 6a.

[0033]Thus, according to this embodiment, like a 1st embodiment first, The electronic money possession information on the IC card set to the client terminal 6a, It is incorporated by the electronic-commerce-technology server 5, and this electronic money possession information is transmitted to the print server 1, and by the printing number-of-sheets calculating means of the printer control circuit 3 of the print server 1. The maximum number of sheets which can be printed for the shown electronic money possession information is computed, the computed number-of-sheets information which can be printed is transmitted to the client terminal 6a, and it is displayed on the display of the client computer 7a.

[0034]Although printing is performed with the printer 2 of the print server 1 in this state based on the print data transmitted from the client terminal 6a, When judged with printing within printing good number of sheets being especially impossible in this embodiment, by the 3rd correspondence control means of the printer control circuit 3. The printing method which reduced print data at least in the part is created, and printing based on this printing method is performed with the printer 2 so that the print data henceforth transmitted from the client terminal 6a may be stored in the remaining number of sheets of the number of sheets which can be printed. And the claim electronic money information built over printing transmitted from the print server 1 in the electronic-commerce-technology server 5, Based on the IC card information incorporated from the client computer 6a, if needed, the print data transmitted from the client terminal 6a so that it may store in [ which can be printed ] number of sheets, Electronic commerce technology of dropping [ lengthen ] the electronic money from the IC card of the client terminal 6a and the payment for the print server 1 is performed to printing with the printing method which reduced print data at least in the part.

[0035]Thus, in this embodiment, if needed by the 3rd correspondence control means of the

printer control circuit 3. It is created by the printing method of the print data transmitted from the client terminal 6a into [ in the electronic money possession information provided with the client terminal 6a / which can be printed ] number of sheets that printing is settled altogether, and with this printing method. Within [ which can be printed ] number of sheets, at least some All Printing Bureau Labour Union data is reduced, it is printed by All Printing Bureau Labour Union, and in the print server 1. Collection of printing fee gold is performed certainly and efficiently via a network, and in the client terminal 6a. It becomes possible to make payment of printing fee gold efficiently by an IC card via a network, and it becomes possible to perform printing corresponding to the electronic manager possession information which the client terminal 6a provides settled in [ which can be printed ] number of sheets accurately and efficiently.

[0036]Although each above embodiment explained the case where an IC card was used as electronic money, it is also possible to use "CyberCoin" which this invention is not limited to these embodiments and trades by providing an account on a network, "E-cash", etc. Although each embodiment explained the case where the whole was looped shape single LAN configuration, it is also possible for this invention not to be limited to each embodiment and to consider the whole as the WAN (WideAreaNetwork) composition which connected LAN mutually, for example.

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TECHNICAL PROBLEM

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[Problem(s) to be Solved by the Invention]this invention is made in view of the actual condition of this kind that was mentioned above of printing system, and comes out. The purpose is to provide the printing system which transfer of a fee is ensured automatically and can control execution of printing by the commercial transaction which comes out accurately corresponding to the electronic money which a client holds.

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PRIOR ART

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[Description of the Prior Art] In recent years based on the print data which provide the print server which installed the printer which was excellent in the performance, and are transmitted from a client terminal via a network, The electronic-filing-document printing service system which provides the client terminal which is distant from the setting position of a print server with the printed matter obtained by printing by this print server has spread. Whenever it passed printed matter to the client which comes printed matter to a receipt by this kind of electronic-filing-document printing service system, for example, it was required to collect corresponding printing fee gold every, and paperwork was complicated.  
[0003]

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## CLAIMS

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[Claim(s)]

[Claim 1]A print server which performs printing based on a printing demand from a client terminal and a client terminal, And an electronic-commerce-technology server which carries out agency control of the electronic commerce technology between said client terminal and said print server, Are the printing system mutually connected via a network, and electronic money possession information on a client terminal which emits said printing demand via said commercial transaction server, For electronic money possession information which an electronic money possession information presenting means shown to said print server was provided in said client terminal, and was shown by said electronic money possession information presenting means. As opposed to a printing demand exceeding number of sheets which was computed by printing number-of-sheets calculating means which computes number of sheets which can be printed, and said printing number-of-sheets calculating means and which can be printed, A printing system, wherein an alarm outputting means which emits an alarm to said client terminal, and a correspondence control means which carries out correspondence control of the printing accurately to a printing demand which is the target of said alarm are provided in said print server.

[Claim 2]The printing system according to claim 1, wherein said correspondence control means controls printing to a printing demand which is the target of said alarm to perform printing to number of sheets which can be printed.

[Claim 3]The printing system according to claim 1 characterized by controlling printing so that said correspondence control means may continue printing on condition of addition of electronic money to a printing demand which is the target of said alarm.

[Claim 4]The printing system according to claim 1 controlling printing to print by number of sheets in which said printing is possible when said correspondence control means carries out the reduced print at least of the part to a printing demand which is the target of said alarm.



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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention]In this invention, print data are transmitted to a print server via a network from a client terminal.

Therefore, it is related with the printing system with which printing of these print data is performed in a print server.

[0002]

[Description of the Prior Art]In recent years based on the print data which provide the print server which installed the printer which was excellent in the performance, and are transmitted from a client terminal via a network, The electronic-filing-document printing service system which provides the client terminal which is distant from the setting position of a print server with the printed matter obtained by printing by this print server has spread. Whenever it passed printed matter to the client which comes printed matter to a receipt by this kind of electronic-filing-document printing service system, for example, it was required to collect corresponding printing fee gold every, and paperwork was complicated.

[0003]

[Problem(s) to be Solved by the Invention]this invention is made in view of the actual condition of this kind that was mentioned above of printing system, and comes out. The purpose is to provide the printing system which transfer of a fee is ensured automatically and can control execution of printing by the commercial transaction which comes out accurately corresponding to the electronic money which a client holds.

[0004]

[Means for Solving the Problem]In order to attain said purpose, the invention according to

claim 1, A print server which performs printing based on a printing demand from a client terminal and a client terminal, And an electronic-commerce-technology server which carries out agency control of the electronic commerce technology between said client terminal and said print server, Are the printing system mutually connected via a network, and electronic money possession information on a client terminal which emits said printing demand via said commercial transaction server, For electronic money possession information which an electronic money possession information presenting means shown to said print server was provided in said client terminal, and was shown by said electronic money possession information presenting means. As opposed to a printing demand exceeding number of sheets which was computed by printing number-of-sheets calculating means which computes number of sheets which can be printed, and said printing number-of-sheets calculating means and which can be printed, An alarm outputting means which emits an alarm to said client terminal, and a correspondence control means which carries out correspondence control of the printing accurately to a printing demand which is the target of said alarm are provided in said print server.

[0005]A print server which performs printing in such a means based on a printing demand from a client terminal and a client terminal, And it is mutually connected via a network by electronic money processing server which carries out agency control, and electronic commerce technology between a client terminal and a print server by an electronic money possession information presenting means. Via an electronic money processing server, a print server is shown it by electronic money possession information on a client terminal which emits a printing demand, and in a print server. Number of sheets which can be printed is computed by printing number-of-sheets calculating means for electronic money possession information shown by an electronic money possession information presenting means. And a printing demand exceeding number of sheets which was computed by a printing number-of-sheets calculating means and which can be printed is received, As opposed to a printing demand which an alarm is outputted to a client terminal by alarm outputting means, and is the target of an alarm by it, Collection of printing fee gold according to electronic possession information shown with a client terminal, correspondence control of the printing is accurately carried out by correspondence control means, and according to a print server, Payment of printing fee gold by a client terminal is made certainly and efficiently via a network, and execution of printing is accurately controlled corresponding to electronic money possession information on a client terminal.

[0006]In order to attain said purpose similarly, the invention according to claim 2 controls printing in the invention according to claim 1 so that said correspondence control means performs printing to number of sheets which can be printed to a printing demand which is the target of said alarm.

[0007]According to such a means, when a correspondence control means controls printing to a

printing demand which is the target of an alarm to perform printing to number of sheets which can be printed, an operation of the invention according to claim 1 is performed.

[0008]In order to attain said purpose similarly, the invention according to claim 3 controls printing in the invention according to claim 1 so that said correspondence control means continues printing on condition of addition of electronic money to a printing demand which is the target of said alarm.

[0009]According to such a means, an operation of the invention according to claim 1 is performed by controlling printing so that a correspondence control means may continue printing on condition of addition of electronic money to a printing demand which is the target of an alarm.

[0010]In order to attain said purpose similarly, the invention according to claim 4, In the invention according to claim 1, said correspondence control means controls printing by carrying out the reduced print at least of the part to a printing demand which is the target of said alarm to print by number of sheets in which said printing is possible.

[0011]According to such a means, when a correspondence control means carries out the reduced print at least of the part to a printing demand which is the target of an alarm, an operation of the invention according to claim 1 is performed by controlling printing to print by number of sheets which can be printed.

[0012]

[Embodiment of the Invention][A 1st embodiment] A 1st embodiment of this invention is described with reference to drawing 1 thru/or drawing 3. The block diagram in which drawing 1 shows the composition of this embodiment, the flow chart with which drawing 2 shows first half operation of this embodiment, and drawing 3 are flow charts which show second half operation of this embodiment.

[0013]This embodiment is a case where IC cards, such as a prepaid card and a credit card, are used as electronic money, and in this embodiment. Two or more client terminals 6a-6n which give a printing demand to the print server 1 which performs print operation to the looped shape transmission medium 11, and the print server 1 as shown in drawing 1, And the electronic-commerce-technology server 5 which carries out agency control of the electronic commerce technology for the print server 1, and client terminal 6a-6n is connected, and looping LAN(LocalAreaNetwork) 10 is constituted. The printer control circuit 3 which controls the operation of the printer 2 and the printer 2 which prints is established in the print server 1 which constitutes this LAN10, and the client computers 7a-7n and the card processing circuits 8a-8n are established in the client terminals 6a-6n, respectively.

[0014]These client terminals 6a-6n are provided with the electronic money possession information presenting means which shows the print server 1 the electronic money possession information on each IC card via the electronic-commerce-technology server 5 by the client

computers 7a-7n and the card processing circuits 8a-8n. The printer control circuit 3 of the print server 1, As opposed to the printing number-of-sheets calculating means which computes the printing number of sheets which can be printed for the electronic money possession information from the client computers 7a-7n, the alarm outputting means which emits an alarm to the printing demand exceeding the number of sheets which can be printed, and the printing demand which is the targets of an alarm, It has the 1st correspondence control means that performs printing to the number of sheets which can be printed.

[0015]Operation of such this embodiment of composition is explained based on the flow chart of drawing 2 and drawing 3. When the case where the print server 1 prints will be here explained with the print request signal emitted from the client terminal 6a, at Step S1 of the flow chart of drawing 2. If the electronic money possession information on the IC card set to the client terminal 6a is read in the card processing circuit 8a, the electronic money possession information that it progresses and corresponds to Step S2 will be transmitted to the printer control circuit 3 of the print server 1 via the transmission medium 11. In this case, at Step S3, if received in the printer control circuit 3 of the print server 1, the electronic money possession information from the client terminal 6a, The number-of-sheets information which was computed by the printing number-of-sheets calculating means of the printer control circuit 3 computing the maximum number of sheets which can be printed, and progressing to Step S5 using the electronic money possession information received and which can be printed is transmitted to the client terminal 6a via the transmission medium 11. And if it progresses to Step S6 and the client computer 7a of the client terminal 6a receives the number-of-sheets information from the print server 1 which can be printed, it will progress to Step S7 and the number-of-sheets information which can be printed will be displayed on the display of the client computer 7a. [0016]Subsequently, progress to Step S8 of the flow chart of drawing 3, and with the client computer 7a of the client terminal 6a. Based on application software, control of the printing execution to the print server 1 is started, it progresses to step S9, and print data are transmitted to the print server 1 via the transmission medium 11 from the client computer 7a. And if the print server 1 receives print data at Step S10, it will progress to Step S11 and printing of the print data transmitted by control of the printer control circuit 3 from the client terminal 6a with the printer 2 will be performed.

[0017]In this case, in the print server 1, performing print operation of the print data based on the printer 2 at Step S12. The judgment of whether printing by the number of sheets which was computed by step S4 and which can be printed is possible is performed to print data, and printing will be continued by it if judged with printing being possible by the printer control circuit 3. Subsequently, in Step S13, the judgment of whether printing was completed is performed, if judged with printing having been completed, it will progress to Step S14 and the claim electronic money information concerning printing will be transmitted to the electronic-

commerce-technology server 5 from the print server 1. And in the electronic-commerce-technology server 5, operation of the electronic commerce technology of dropping [ lengthen ] electronic money and the payment for the print server 1 is performed based on the claim electronic money information concerning printing received from the print server 1, and the IC card information incorporated from the client computer 6a. If judged with printing not being completed at Step S13, it will return to step S9 and, as for the following, the already explained operation will be repeated.

[0018]On the other hand, at Step S12, if judged with printing within [ which can be printed ] number of sheets being impossible, it will progress to Step S15, To the client terminal 6a, from the alarm outputting means of the printer control circuit 3 of the print server 1. In continuation of printing beyond this, an alarm signal that the number of sheets which can be printed exceeds is transmitted, and the message of an alarm signal is displayed on the display of the client computer 7a of the client terminal 6a. And based on this alarm signal, if the number of sheets which can be printed is reached, the client computer 7a will stop and the transmission to the print server 1 of print data will progress to Step S17 with it, Printing of the number of sheets in the print server 1 which can be printed is completed, and it progresses to Step S14, and as already explained, operation of electronic commerce technology is performed.

[0019]Thus, the electronic money possession information on the IC card which was first set to the client terminal 6a according to this embodiment, From the electronic-commerce-technology server 5, it is incorporated by the electronic-commerce-technology server 5, and this electronic money possession information is transmitted to the print server 1, and by the printer control circuit 3 of the print server 1. The maximum number of sheets which can be printed for the electronic money possession information shown from the client terminal 6a is computed, the computed number-of-sheets information which can be printed is transmitted to the client terminal 6a, and the message of the number of sheets which can be printed is displayed on the display of the client computer 7a.

[0020]Although printing is performed with the printer 2 of the print server 1 in this state based on the print data transmitted from the client terminal 6a, Set like real overshooting of printing, and the judgment of whether printing within [ which can be printed ] number of sheets is possible is performed by the printer control circuit 3, and especially in this embodiment. If judged with printing within printing good number of sheets being impossible, the alarm of an excess of number of sheets for the electronic money possession information on presentation which can be printed will be displayed on the display of the client computer 7a, and after printing of the number of sheets which can be printed is completed, print operation stops. And the claim electronic money information built over printing transmitted from the print server 1 by the electronic-commerce-technology server 5, Based on the IC card information incorporated from the client computer 6a, electronic commerce technology of dropping [ lengthen ] the

electronic money from the IC card of the client terminal 6a and the payment for the print server 1 is performed corresponding to the number of sheets which can be printed.

[0021]For this reason, according to this embodiment, according to the electronic money possession information provided with the client terminal 6a, it is accurately controlled by printing to the number of sheets which can be printed, and in the print server 1. Collection of printing fee gold is performed certainly and efficiently via a network, and in the client terminal 6a. It becomes possible to make payment of printing fee gold efficiently by an IC card via a network, and it becomes possible to perform printing corresponding to the electronic manager possession information which the client terminal 6a provides accurately and efficiently.

[0022][A 2nd embodiment] A 2nd embodiment of this invention is described with reference to drawing 4. Drawing 4 is a flow chart which shows second half operation of this embodiment.

[0023]When this embodiment diverts and explains drawing 1, the printer control circuit 3 of the print server 1, Although it has a printing number-of-sheets calculating means which computes the number of sheets which can be printed for the electronic money possession information from the client computers 7a-7n, and an alarm outputting means which emits an alarm to the printing demand exceeding the number of sheets which can be printed like a 1st embodiment, It replaces with the 1st correspondence control means of a 1st embodiment, and has the 2nd correspondence control means that performs printing controlling so that printing may be continued on condition of addition of electronic money to the printing demand which is the target of an alarm. Since the composition of the portion of others of this embodiment is the same as that of a 1st already described embodiment, overlapping explanation is not given.

[0024]Based on the flow chart of drawing 4, drawing 1 is diverted and operation of such a 2nd embodiment of composition is explained. The operation to Step S21 of this embodiment is the same as operation to the 1st Step S1 thru/or Step S14 of an embodiment already explained with reference to drawing 2 and drawing 3. In this embodiment, at Step S12 of the flow chart of drawing 3, if judged with printing within [ which can be printed ] number of sheets being impossible, it will progress to Step S21 of the flow chart of drawing 4. To the client terminal 6a, from the alarm outputting means of the printer control circuit 3 of the print server 1. An alarm signal that the number of sheets which can be printed exceeds in continuation of printing beyond this is transmitted, and the message of an alarm signal is displayed on the display of the client computer 7a in the client terminal 6a.

[0025]And progress to Step S22 and an electronic money addition request signal is transmitted to the client terminal 6a from the print server 1, Receive this electronic money addition request signal, and if print data are transmitted to the print server 1 in Step S23 from the client terminal 6a which performed electronic money adding processing, it will progress to Step S24, The judgment of whether printing within [ which can be printed ] number of sheets is possible is performed by the printer control circuit 3 of the print server 1. And if judged with printing within

[ which can be printed ] number of sheets being possible, printing will be continued, and it progresses to Step S25, and the judgment of whether printing was completed by the printer control circuit 3 is performed. At Step S24, if judged with printing within [ which can be printed ] number of sheets being impossible, it will return to Step S21 and the already explained operation will be repeated.

[0026]And if judged with printing having been completed at Step S25, from the print server 1, the claim electronic money information concerning printing will be transmitted to the electronic-commerce-technology server 5, and it will progress to Step S26, In the electronic-commerce-technology server 5, operation of the electronic commerce technology of dropping [ lengthen ] electronic money and the payment for the print server 1 is performed based on the claim electronic money information received from the print server 1, and the IC card information incorporated from the client computer 6a. If judged with printing not being completed at Step S25, it will return to Step S23 and, as for the following, the same operation as the already explained operation will be repeated.

[0027]Thus, according to this embodiment, like a 1st embodiment, First, the electronic money possession information on the IC card set to the client terminal 6a, It is incorporated by the electronic-commerce-technology server 5, is transmitted to the print server 1 by this electronic money possession information, and by the printing number-of-sheets calculating means of the printer control circuit 3 of the print server 1. The maximum number of sheets which can be printed for the electronic money possession information shown from the client terminal 6a is computed, this number-of-sheets information that can be printed is transmitted to the client terminal 6a, and it is displayed on the display of the client computer 7a.

[0028]In this state, based on the print data transmitted from the client terminal 6a, it is performed by printing with the printer 2 of the print server 1, and by the printer control circuit 3. Like real overshooting of printing, possibility is judged and printing within [ which can be printed ] number of sheets especially in this embodiment. If judged with printing within printing good number of sheets being impossible, the alarm of an excess of number of sheets for the electronic money possession information on presentation which can be printed will be displayed on the display of the client computer 7a, The addition request of electronic money is performed to the client terminal 6a from the print server 1, and control execution of the printing corresponding to the original electronic money possession information and the electronic money added is carried out by the printer control circuit 3. And the claim electronic money built over printing based on the electronic money possession information and the additional electronic money of the client terminal 6a from the print server 1 by the electronic-commerce-technology server 5 after the end of printing, Based on the IC card information on the client terminal 6a, electronic commerce technology of dropping [ lengthen ] the electronic money from the IC card of the client terminal 6a and the payment for the print server 1 is performed.



[0029]For this reason, the electronic money possession information which is provided with the client terminal 6a according to this embodiment, According to the additional money information added in a printing process, accurately, continuous control of the printing is carried out and in the print server 1. Collection of printing fee gold is performed certainly and efficiently via a network, and in the client terminal 6a. It becomes possible to make payment of printing fee gold efficiently by an IC card via a network, and it becomes possible to perform printing corresponding to the additional electronic money of electronic money possession information and after that which the client terminal 6a provides accurately and efficiently.

[0030][A 3rd embodiment] A 3rd embodiment of this invention is described with reference to drawing 5. Drawing 5 is a flow chart which shows the corresponding operation at the time of an excess of number of sheets of this embodiment which can be printed.

[0031]When this embodiment diverts and explains drawing 1, the printer control circuit 3 of the print server 1, Although it has a printing number-of-sheets calculating means which computes the number of sheets which can be printed for the possession information on the electronic money from the client computers 7a-7n, and an alarm outputting means which emits an alarm to the printing demand exceeding the number of sheets which can be printed like a 1st embodiment, It has the 3rd correspondence control means corresponding to electronic money possession information that controls printing to print within [ which can be printed ] number of sheets by replacing with the 1st correspondence control means of a 1st embodiment, and carrying out the reduced print at least of the part to the printing demand which is the target of an alarm. Since the composition of the portion of others of this embodiment is the same as that of a 1st already described embodiment, overlapping explanation is not given.

[0032]Based on the flow chart of drawing 5, drawing 1 is diverted and operation of such a 3rd embodiment of composition is explained. The operation to Step S31 of this embodiment is the same as operation to the 1st Step S1 thru/or Step S14 of an embodiment already explained with reference to drawing 2 and drawing 3. In this embodiment, at Step S12 of the flow chart of drawing 3, if judged with printing within [ which can be printed ] number of sheets being impossible, it will progress to Step S31 of drawing 5. By the 3rd correspondence control means of the printer control circuit 3, the print data henceforth transmitted from the client terminal 6a so that it may store in the remaining number of sheets of the number of sheets which can be printed, The printing method which reduced print data at least in the part is created, and printing based on this printing method is performed with the printer 2. And printing by the created printing method is continued and it progresses to Step S32, After the output of the print data from the client terminal 6a is completed, All Printing Bureau Labour Union completes, and it progresses to Step S33, In the electronic-commerce-technology server 5, operation of the electronic commerce technology of dropping [ lengthen ] electronic money and the payment for the print server 1 is performed based on the claim electronic money information received from

the print server 1, and the IC card information incorporated from the client computer 6a.

[0033]Thus, according to this embodiment, like a 1st embodiment first, The electronic money possession information on the IC card set to the client terminal 6a, It is incorporated by the electronic-commerce-technology server 5, and this electronic money possession information is transmitted to the print server 1, and by the printing number-of-sheets calculating means of the printer control circuit 3 of the print server 1. The maximum number of sheets which can be printed for the shown electronic money possession information is computed, the computed number-of-sheets information which can be printed is transmitted to the client terminal 6a, and it is displayed on the display of the client computer 7a.

[0034]Although printing is performed with the printer 2 of the print server 1 in this state based on the print data transmitted from the client terminal 6a, When judged with printing within printing good number of sheets being especially impossible in this embodiment, by the 3rd correspondence control means of the printer control circuit 3. The printing method which reduced print data at least in the part is created, and printing based on this printing method is performed with the printer 2 so that the print data henceforth transmitted from the client terminal 6a may be stored in the remaining number of sheets of the number of sheets which can be printed. And the claim electronic money information built over printing transmitted from the print server 1 in the electronic-commerce-technology server 5, Based on the IC card information incorporated from the client computer 6a, if needed, the print data transmitted from the client terminal 6a so that it may store in [ which can be printed ] number of sheets, Electronic commerce technology of dropping [ lengthen ] the electronic money from the IC card of the client terminal 6a and the payment for the print server 1 is performed to printing with the printing method which reduced print data at least in the part.

[0035]Thus, in this embodiment, if needed by the 3rd correspondence control means of the printer control circuit 3. It is created by the printing method of the print data transmitted from the client terminal 6a into [ in the electronic money possession information provided with the client terminal 6a / which can be printed ] number of sheets that printing is settled altogether, and with this printing method. Within [ which can be printed ] number of sheets, at least some All Printing Bureau Labour Union data is reduced, it is printed by All Printing Bureau Labour Union, and in the print server 1. Collection of printing fee gold is performed certainly and efficiently via a network, and in the client terminal 6a. It becomes possible to make payment of printing fee gold efficiently by an IC card via a network, and it becomes possible to perform printing corresponding to the electronic manager possession information which the client terminal 6a provides settled in [ which can be printed ] number of sheets accurately and efficiently.

[0036]Although each above embodiment explained the case where an IC card was used as electronic money, it is also possible to use "CyberCoin" which this invention is not limited to

these embodiments and trades by providing an account on a network, "E-cash", etc. Although each embodiment explained the case where the whole was looped shape single LAN configuration, it is also possible for this invention not to be limited to each embodiment and to consider the whole as the WAN (WideAreaNetwork) composition which connected LAN mutually, for example.

[0037]

[Effect of the Invention]In the invention concerning the printing system according to claim 1. The print server which performs printing based on the printing demand from a client terminal and a client terminal, And it is mutually connected via the network by the electronic money processing server which carries out agency control, and the electronic commerce technology between a client terminal and a print server by an electronic money possession information presenting means. Via an electronic money processing server, a print server is shown it by the electronic money possession information on the client terminal which emits a printing demand, and in a print server. The number of sheets which can be printed is computed by the printing number-of-sheets calculating means for the electronic money possession information shown by the electronic money possession information presenting means. And the printing demand exceeding the number of sheets which was computed by the printing number-of-sheets calculating means and which can be printed is received, As opposed to the printing demand which an alarm is outputted to a client terminal by the alarm outputting means, and is the target of an alarm by it, Since correspondence control of the printing is accurately carried out by the correspondence control means according to the electronic possession information shown with a client terminal, Collection of printing fee gold by a print server and payment of printing fee gold by a client terminal are made certainly and efficiently via a network, and it becomes possible to control execution of printing accurately corresponding to the electronic money possession information on a client terminal.

[0038]According to the invention according to claim 2, a correspondence control means becomes realizable [ the effect in the invention according to claim 1 ] by controlling printing to the printing demand which is the target of an alarm to perform printing to the number of sheets which can be printed.

[0039]According to the invention according to claim 3, realization of the effect in the invention according to claim 1 is attained by controlling printing so that a correspondence control means may continue printing on condition of addition of electronic money to the printing demand which is the target of an alarm.

[0040]According to the invention according to claim 4, when a correspondence control means carries out the reduced print at least of the part to the printing demand which is the target of an alarm, realization of the effect in the invention according to claim 1 is attained by controlling printing to print by the number of sheets which can be printed.

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1]It is a block diagram showing the composition of a 1st embodiment of this invention.

[Drawing 2]It is a flow chart which shows first half operation of the embodiment.

[Drawing 3]It is a flow chart which shows second half operation of the embodiment.

[Drawing 4]It is a flow chart which shows the corresponding operation at the time of an excess of number of sheets of a 2nd embodiment of this invention which can be printed.

[Drawing 5]It is a flow chart which shows the corresponding operation at the time of an excess of number of sheets of a 3rd embodiment of this invention which can be printed.

[Description of Notations]

- 1 Print server
- 2 Printer
- 3 Printer control circuit
- 5 Electronic-commerce-technology server
- 6a-6n client terminal
- 7a-7n Client computer
- 8a-8n Card processing circuit
- 10 LAN

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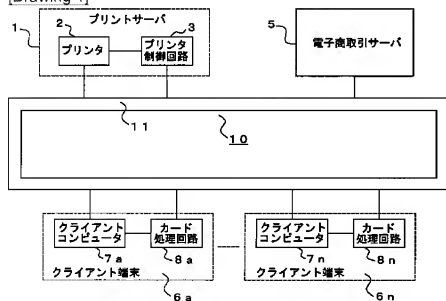
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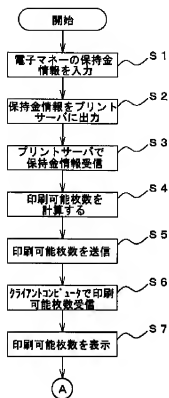
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## DRAWINGS

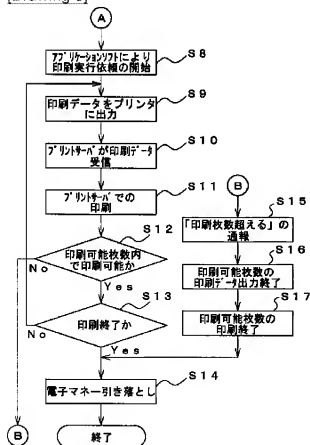
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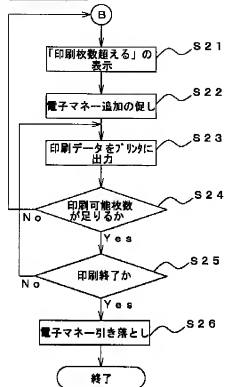
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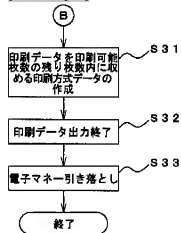
[Drawing 3]



[Drawing 4]



[Drawing 5]



[Translation done.]